ANT/GRA/01

NGER

201 - 265

0008

DG1 - 58

P.C.M. 1969

(1) (AMERY)

INDEX

Page	Subject
	D. J. GRAINGER BUREAU OF MINERAL RESOURCES CANBERRA A.C.T.
	1969
	PRINCE CHARLES MOUNTAINS SURVEY PRELIMINARY REPORT ON LAND, AUSTRALIAN ANTARCTIC TERRITORY
1-18	Rubelli Bluff
18-40	New Year Nth
40-44	Razorback Nth (near N. Year Nth)
	All bearings are magnetic
44-56	Fox Ridge

Tuesday 14th Jan 1969

Rubeli Bluff.

DG 1 see p8

(201) At △ stn approx 200ˣ (600m) east from western edge of plateau. Frost-shattered boulders of biotite - ? hornblende - qtz-feldspar gneiss. Very approx. trend of 330°. Gneiss med gr. sugary texture of the qtzo-feld. Dark minerals make up about 30-40% of rock. Some biotite-rich bands and also qtzo-feldsp. gneiss bands among the frost shattered rocks.

At △ stn. hummocky ground - depressions have smaller sized fragments than humps (large pcs size → 15cm) Humps → ½ m. above depressions

△ stn is small dark coloured rise about 4m. above surrounding area. Similar dark rises elsewhere on plateau. Intervening ground is light-coloured moraine. Patterned ground - polygons about 2m diameter with larger polygons ~~crack~~ bounded by cracks up 1< ½ m. deep, 25m. diam. Erratics of garnet bi-gn, qtz. qtz. feld gn., banded gneiss, a few boulders of gr. granite as at Landing Bluff.

2

dust coloured
rain
depression
rain
steep cliff
moraine
white
rock
outcrop
moraine
edge of frost-
shattered ground at
D sta

Rubella Bluff flat-topped plateau about 100 m above glacier. Steep-sided.
Δstn approx 200 m south of Δstn wide shallow E-W depression

On helicopter flight along west side of Bluff cliffs of banded green dipping W towards S at about 60°. Appears to be alternate light and dark coloured bands several metres wide.

Wednesday 15th Jan

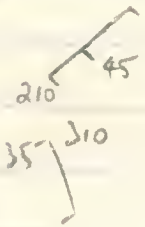
(202) 50m west from Δstn. Leucocratic gn in S.L. Light coloured bi = hb Q.F. gn dark minerals abt 20% Rather granular texture. A band of pink gneiss 5–10 cm wide // foliation. Thin band v. leucocratic lack of dark minerals bi = hb.

foliation 340/75

lineation (mineral elongation) 60° → 305

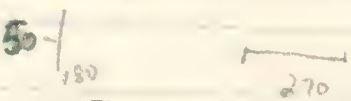
Grain size about 2–3 mm. Some coarser lenses 5→10 mm. and are slightly cross cutting. The whole rock has a granitic aspect.

(203) On face of cliff west from Δstn. Leucocratic grey-brown coloured gneiss
34?
50 Qtz feld gneiss with minor dark
mineral ? hb. or fg. Gneissosity emphasised by flattened qtz. but rock has a general
granular texture.
Also finer grained darker coloured gneiss with more
dark minerals. A few thin qtz veinlets
1 cm thick ll^r foliation.
Joints



Darker coloured gneiss v similar to DG1 at
Δstn.

(204) 50 m South along cliff good exposure of
qtz feldspar gneiss with minor dark minerals
as at 203. V similar except that more
bt esp in foliation planes. Rock blocky.



Sample (DG 2) of Q.F gn.

Also bands 2-3m. thick of coarser grained ? hb.-bt.-qtz gneiss and bt-hb qtz gneiss. Some thin qtz ± peg veins conformable with foliation.

[Rock face visible 150m. south along west face of cliffs - not accessible but shows large scale banding. Rock mostly a grey-brown colour but there are bands of creamy coloured rock (and what may be veins of). Also darker bands. Some ? large phygmatic folds Rock face presents a heterogeneous aspect. Bands appear to strike and dip similar to the measured outcrops] from 204

(205) Approx 80m south along cliff edge from 204. Rock face shows alternating bands of light coloured qtz-feldspar gneiss as DG2 and darker more ferromag. rich gneiss. Bands up to 3m thick. Some thin (→ 50cm. thick) qtz ± qtz-feld. veinlets.

DG3 Sample of darker gneiss.

Lat 70° 29' Long 7° 25'

(.6 foot-path slope)

(206) On southern side of large E-W depression south of △stn garnet (pale pink) qtz feld. gneiss. Minor biotite and ? hbl or py. Rock has streaky appearance due to fine banding of dark garnet & ferromag minerals alternating with qtz feld-rich layers. Bands usually only few mm thick. Med grained rock

Foliation 340/60 at 260°. DG 4 Rather wavy foliation trend Well devel. vert jointing Lat 70°30' Long 2°26

The valley has same trend as the rocks.
Valley is broad U-shaped

Variation as traverse up slope are coarser-grained garnet-qtz feld-gneiss. Little or no black minerals. Upto 10 m thick. Also thin bands → 10 cm of qt rich gneiss

Up slope 10m band of qtz feldspar gneiss with minor pale pink gts. Also band 1-2 m thick of gt-bi-QF gneiss. f-m grained.

Up slope band upto 10 m thick of gt ? py qtz feld. gneiss.

Continue up slope across gt-rich bands and dark gt bi-rich bands.

Foliated augen gneiss and porphyroblastic gt bt qtz feld gneiss. Feld. porphs up to 2·5cm. Porphs are orthoclase.

Gt gneiss varies up slope.

(207) Halfway to top of "headland" gt qtz-feldspathic gneiss grade into coarse grained brown coloured speckled rock. Porphyroblastic bt (> Hb or Py) qtz feldspar gneiss. Feld (orthoclase) porphs up to 2·5 cms. — greasy brown. Sample DG 5 Lat 70° 30' 5" Long 72° 26'

Foliation 335 SS

Joints 250 / augen gneiss.

(208) Outcrops up hill to head of cirque ~~cirque~~ Similar gneiss to DG5 but not so porphyroblastic Sample DG 6. 70° 31' 00" Long 72° 26'

FST 340 65 SW

On face of cirque to south appears to be similar rock to DG6 but inaccessible. Has similar strike & dip. Some light coloured veins cross-cut foliation.

Appears to be some sheer zone

7

240

33°

240

70

170

10

Striking approx 240° dip 1 x 70° to 330°

At △stn. (location 201.) Sample
DG1 Brown colored medium grained
Bi - ?Py. gtz feld gneiss. in situ
Similar to DG6.
Lat 70° 29' Long 72° 27'

Summary of Geology of Rebek Island
Banded gneiss (bi - ? pyroxene (or hb)
gtz feldspar gneiss and variation of
garnet gneiss strike 340° and dip
50 - 75° - dir 250° The strike direct
is fairly constant.

Large scale banding is present in the
gneisses - the form of more gtz feldspathic
bands and more ~~fine~~ ferromagnesian bands

Pegs + gtz veins are minor.

The garnet gneiss occupy the S
side of the wide U. shaped valley S of
△stn. (the N side of valley is mostly
covered)

S of the valley gneisses similar

← at the Δ stn outcrop. The main diff is the presence of porphyroblastic grains of similar composition to the rocks near Δ stn.

At the Δ stn and possibly at the other dark coloured crags visible the rocks are mostly in situ or have merely been displaced by frost action. The absence of moraine from the Δ stn suggests that this must have been free from ice at the last glacial max.

Patterned moraine is present on the surrounding plateau. Mounds of coarse moraine separated by depressions and ribbons of fine material (sand and loss).

Large moraine at foot of cliffs and crags.

Take care to check the rocks have possible characteristic affinities

Thursday 16th Jan

(209) North for 250m. along cliff edge from △ Stop.

Dark coloured speckled gneiss (moderately foliated) - slabby outcrop ? pyroxene. Pg-feldspar gneiss. On fresh surfaces quartz blue or black. Medium grained ave textured granular rock. Pg-feld. granular. Rock breaks into slabs but in hand spec is not well foliated

Foliation 330° (55°W)

Loc 1
6122013
280°
7m

Lat 72°28'30" Long 72°26'

Some thin (2 cm) aplitic veinlets concordant.

On cliff face to south several light coloured concordant bands several metres wide can be seen. Similar but thinner bands are present on cliff face to north (Pass N over light coloured band)

(210) 150m Light coloured bands on cliff face continuing from 209. Quartz fld gneiss with ? pyroxene. Some garnet from here. Gneiss coarse grained than at 209.

100m

1

plagioclase augmented by flattened blue grey qtz. Feldspar brown colour and granular
Unable to obtain fresh rock | Lat 70°08'2"26'
Foliation. 65/350 | Sample DG 8
Rock generally a yellow-brown colour
Alternating light and dark bands for 50m+

From observation of cliff face, light coloured bands make up 30-40% of face to S

(211) Traverse N for 200m+ along cliff edge showing dark pyroxene qtz feldspar gneiss and light coloured qtz feldspar gneiss. Near northern side of fault, dark E-W striking banded gneiss with pyroxene qtz feldspar gneiss. Banding of the order of a few cms. Pale pink garnets, mm qtz dark coloured feldspar green-brown. Coarse grained due to brittle and flattened qtz. Centimetre-scale granular texture.
Foliation 45/345 30/70 close spaced joints

Sample DG 9 Lat 70°08'40" Long 70°2[illegible]
Banding due to varying amounts of mafics. Similar to DG 8 but porphyroblasts

At foot of cliff Huck of stained lichen.

50m N from 211

(212) On S. valley edge ^ pyroxene gneiss similar to at 209 but possibly more py. Large scale banding and also some finer banding within the darker bands, due to variation in dark minerals. Thicker bands not as thick as at location 209-210. Foliation + dips as at 211

N side of valley inaccessible but formed by dip slope of banded gneisses. Light coloured lichen from most of valley side.

(213) On hill top on N side of E-W valley porphyroblastic garnet-biotite-pyroxene alk feld gneiss ? in thin. Large feldspars (grey) 1cm → 2-3 cms. Some large garnet → 1.5 cm. Similar to DG5 at location 207 but at 213 garnet/gneiss.

(214) Cliff face NW of 213 gt bi py alk feld. gneiss. Rock yellow brown colour on outcrop and banded by variation in bi- and py. Bands of gneiss very well.

12

Rock as at 211. A few thin qtz veinlets
Foliation 45/10 1-2 cms thick concord.

(215) Approx ½ mile ESE of north along cliffs from 214. Same coloured moraine. Alternating bands of dark coloured pyroxene qtz-felds gneiss as at 209 (speckled rock) and light coloured coarse grained qtz-felds-pyx gneiss with minor pyx & garnet as at 210. Bands coloured weathered ends.
Foliation 45/330 Min lineation ← 270 35

Bearing to Spaydd Is. = 304°
Bearing to Jennings Point 78°
" " Monsuno Rk = 297° mag 227° true.

There appears to be no more exposures until N. tip of Robert Shelf.
Cliffs low and morainic slopes down to ice

At 215 Light coloured garnet gneiss band 2cm thick.
Little moraine. Surface mainly of fractured rocks appear in situ

Pom

Traverse a heavy 230 mag from △stn to prominent hill on skyline. Approx 2 km

After crossing wide valley then up slope over boulders of gt. granite veins

(216) followed by QF gn veined & hill top speckled ("pepper & salt") rock on at △stn and 220 209 (but some more bi-rich) Granite

Bearing from hill top to △stn = 310° mag

" " " Jennings Pom = 73° mag.

Speckled rock is bi-py-qtz-feld. green medium grained patho granites.

Foliation 340 / 45 well jointed. 250 vert

Outcrop low rather flaggy appearance but some more massive bands 2-3 m thick

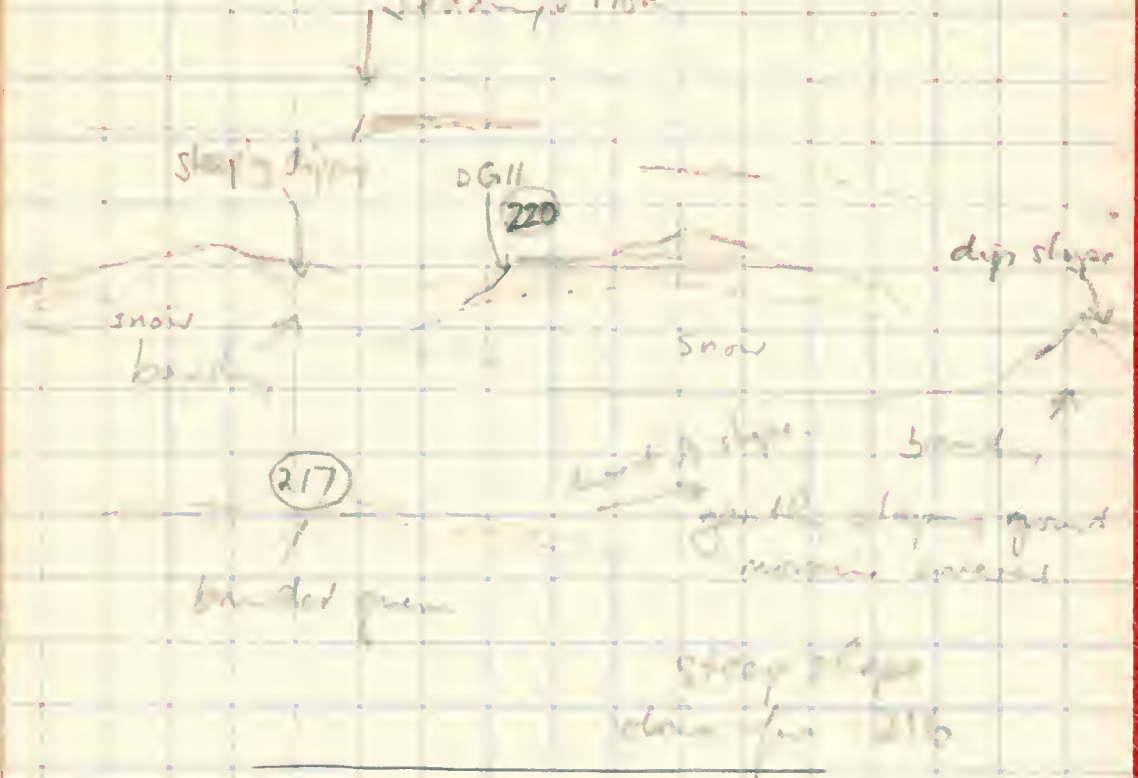
Minor qtz feld. peg veins common ~10 cm thick

Small hillocks to N show alternate light and dark bands dipping at 45° to NW for 1 or 2 miles 209 × 210 Light bands here resistant ridges Dk bands weathered Minor contact graphic QF veins and Bi.gt.peg.

Round fells across steeply to north

14

From 216 Look N



Look E. from 216

the flatiron at the 1km. Three large isolated hills at N extremity of Rusch Bluff can be observed to be banded a large scale but fm locality 216 banding does not appear to be consistent fm one hill to another.

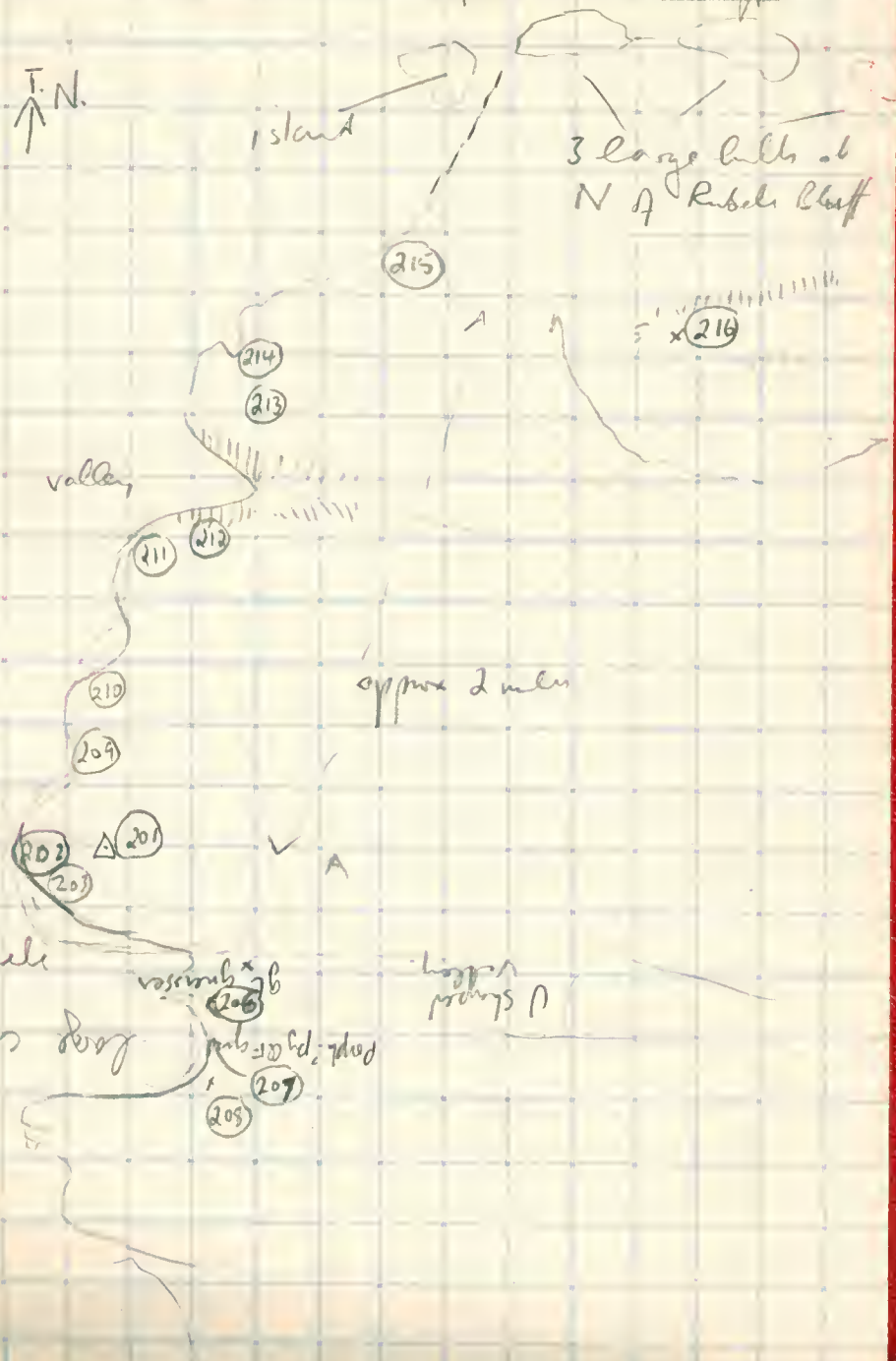
Locality 216 is the seaward tip of a small headland which extends seaward (150°) and ends in a prominent headland. Between the wide valley south of the headland are a series of small hills running E-W.

The headland is also visible fm 216

(217) 117 about 300m south fm 216 hillock with varieties of gneiss. V similar to locality 206 Large garnets and BF gneiss seaming by blue qtz and blue qtz-felt work up to 1 cm wide. Rocks not in situ but angular only moved by frost shattering

(218) 100m west & continuation of 217 ridge outcrop of good qtz fold gneiss minor biotite and v. minor Py Hornblende

Sketch plan of W side of Rubeh Bluff



med to coarse grained Qtz blue and opaque Feldspar
- Similar to coarser qtz feld gneiss of 206
Garnets up to 1 cm. diam.
A few isolated pods up to 30 cms diameter of
fine - med grained dark coloured speckled
granular biotite ? pyroxene qtz feld. rock. Brown
feldspar and dark coloured qtz Enhances
dark appearance of rock and diff to
estimate % to ferromag. mineb. Sharp
contact with garnet rock

Foliation 327° / 45° 35 ← 275° Lineation mineralogical due to flattened qtz ?

Joints 25° ⟷ vert

17th Jan (219) Isolated pointed hill inland from S
end of Rubeli Bluff. Porphyroblastic
granite gneiss similar to (207) & (208)
Some inclusions of fine grained speckled rock
~~Rock~~ Purple rock breaks into large slabs

Foliation 290° / V. Steep Joints Strong ⟷ 200° vert

Appears that southern end of Bluff
Similar to 219. Sample DG 10

(220) NW N end of Cliff in middle of the three large bulbs

Migmatitic Qtz feld gneiss with some dark minerals veined with pg + pg veins → 1 in. thick. Irregular fine banding in gneiss due to concentration of biotite and the pg-qtz veins.

Cliff free from many leucocratic veins inside.

Sample DG II 2 photographs

Foliation appears. 240-300 / 35

Steeply dipping banded gneiss + cliff to south.

DG II Lat. 70°26' Long. 72°30'

DG 12 ≡ 6928021S

Ent Biotite gneiss K feldspar porphyritic
Minor alteration of garnet

All samples from New Years Nunk

Lat 71° 05' S.

Long 71° 32' E

MANNING NTKS

NEW YEAR NTK 18th JAN 1969

Scree and frost shattered boulders of migmatite rock on △ sth-hill. Also float of porphyritic dolerite

(221) Near SW extremity of ntk exposures of garnet-biotite-qtz-feldspar gneiss. DG 12
It is a leucocratic finely banded rock composed mainly of qtz and feldspar and having thin streaks (usually less than 1 cm thick) of biotite. Garnet tends to be associated with the biotite streaks. Medium grained except for some feldspar porphyroblasts.
Foliation: 300/40 Joints: 50/15

Foliation generally consistent but in many places M.Q.F. pegmatoid veins → ½ m. are discordant and concordant. Peg. pods along the foliation places are fairly common. The peg pods and the veinlets are bounded by biotite-rich streaks.
The weathered rock is a red-brown colour.

18

DG 13 ≡ 69280216

Two pyroxene granulite.

Pyroxenes altered to biotite
Trace Qtz - Hbl 10-15%

Conformable within the garnet bi- qtz gneiss are bands up to 2-3m thick of very biotite rich equigranular rock. Very dark coloured medium grained [Sample DG13] has little or no foliation ? Pyroxene. Granulite At Locality 221 makes up 10-15% of exposure.

Locality 221 has a migmatite suite of rock.

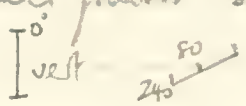
SUNDAY 19th JAN

(222) At extreme SW promontory of New York Nth Similar suite of rocks as at 221 but rock type DG13 not so abundant — Isolated pods Foliation 302/60 and lenses of bi-rich rock.

Pegmatite veins are mostly concordant. Common mineralogy is garnet qtz perthitic feldspar + some biotite. Some pegs zoned with a qtz core or with qtz-feld mosaic at margins and coarse feld core.

(223) About 50m N. from 221 a cliff edge streaky gneiss as DG12 but little to no garnet. Bands 1cm thick or less Bi-rich

bands separate qtz feld granular layers
Lenses and pods of peg. along foliation planes
Lineation 245 / 35 Well jointed blocky outcrop



Rubble-filled gully 0.6m wide sides of which strike 240° and dip 80° in direction 350° many sub vert joints. Appears to be displacement of about 0.5m across gully. South magnetic side down.

Peg vein 10cm thick having coarse QF margins and med gr. bt-mil core & / 50 / 160 appears to cross cut a 1.5m thick internally irregular (i.e. not readily observable zoning) Dk gy QF peg. Bodies of mic. → 3cms. / 70 / 130
∴ deformation by vein

AL(224) 50m N from 223 even textured granular qtz bt SF rock-similar to DG12 but v little banding. Loose boulders only, no cliff face. Veined with peg
Has appearance of fine grained [illegible]

(215) 100m. Walking cliffs being traversed over loose boulders of migmatitic gneiss.

Similar to locality 221 but in general rocks less sheeted and banded.

Sample DG 14 is typical of 225 – coarse grained garnet-biotite-qtz-feldspar rock with poorly defined foliation. Isolated Crystals of biotite are separated by a mosaic of qtz + feldspar beads.

The outcrop is veined with qtz to 0·5 pegs which are mainly concordant but several are vertical striking approx 270° up to 1m wide. There are pods and Crystals of Ribeckite as DG 13.

Gneiss as DG 12 is also present but in general the outcrop is composed of DG 14

Foliation $\frac{270}{15}$

The cliff face to the S. consists of leucocratic rock well jointed and with blocky outcrop. Flanked unconformably by bands of darker rock ? DG 13 and pegs veins. The boundary is sometimes curved. Irregular pegs veins

(220) On headland. Magnetic from Sample

DG 15 Slightly porphyroblastic coarse grained "biotite qtz fold. gneiss. Brown garnet especially in more banded layers of the hand specimen separating the granular biotite rich layers. Some porphyroblast of feldspar esp seen in outcrop. (Burnished colour)

The outcrop is formed of angular ± granitic fragments of DG 15 with weakly foliated garnet rich layers like DG 14 and garnet-bearing gneiss like DG 12. The poor exposure make an estimation of the proportions of the constituents to discuss the rock type impossible. Considerable variety appears

A feature of the outcrop is the presence of light coloured outcrops of all above rock types in bands striking 180° and up to 5 m. wide. They strike in the direction of prominent joints some of which are occupied by pegmatite and it may be that the bleaching effect is due to the pegmatites. They stand out from the red brown weathered surfaces of the remainder of the outcrops. There are two main light coloured zones.

290/25 I 185 Joints.

Most probably due to leaching of Fe. along joints

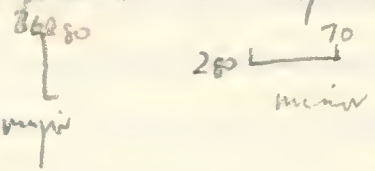
22

(227) Outcrop on north side of large valley which trends approx. E → W.

Migmatitic biotite gneiss as 226 & 2 but several abscr few semi-thin leg. pods, lenses and veins concordant and small number of x-cutting veins observed

Well foliated rock 275 — Biotite-rich streaks separated by lenses and bands of 15 qtz-felspar. Individual bands usually 1 cm or less thick. Foliation regular and only rarely contorted.

Well jointed close spaced. 1 – 2 m.



A few pegs veins 5–10 cm wide strike at about 90° west. and may be conformable.

Between (227) and large headland to NW no outcrop. Moraine and boggy hollows.

Rusty brown qtz felds gneiss to north of valley.

Westbay cliffs

Cliff section trending E-W at north end of nunatak. (Observed from DG12 & DG13)

Migmatite with leucosome and irregular bands of dark rock (? DG13) which appears to be a composite coarse grained porphyritic "granite" dyke ? 2 m thick cross cuts the gneisses dyke 310/45

Reg. veins and irregular pods and lenses concordant and x-cutting

Near top of cliff porphyritic granite in part has a linear contact with the migmatite elsewhere irregular + gneiss contorted

Variable dip and strike of gneisses above cliff but observed part the gneisses appear to be overfolded with fold axis 0 trending 275/30

The upper limb dips to the W and lower limb to the E

General strike direction of cliffs and mid slope land

(228) On cliff top near above the porphyritic "Granite". Sample DG16 is of the contact between irregularly banded migmatitic biotite gneiss and dark granite. The granite side of the contact is a mosaic of fine grained

qtz feldspar and minor bi about 3cms – 5cm thick. Thus is followed by coarse grained and pegmatitic granite. Contact dips steeply S. The contact between gneiss and granite is quite sharp. Apophyses of qtz and feldspar penetrate between foliation planes of the gneiss.

Sample DG 17 is of m – coarse grained bi granite

Sample DG 18 is of very coarse to pegmatitic granite. Even coarser pegmatitic varieties are present

The outcrop is a mixture of the various types of granite intimately mixed and veined with pegmatite and buck quartz. There does not appear to be a preferred orientation with the peg and qtz veins.

Joints ↗140 ↘120 also flat lying joints

blocky outcrop

NW about 35m inland from cliffs boulders of granite gneiss very to boulders and float of migmatitic bi gneiss. The majority of the

St295 $\frac{291}{5D}$ Lan Lit

Granite is a dyke MON 20th JAN 1969

(229) Bl 20m. E along cliff edge, contact of granite + gneiss well exposed. Sharp contact except where veinlets of granite penetrate along foliation planes of gneiss. Contact 330°/60 Strike is along cliff edge

Gneiss at contact 290°/30 well foliated + dark migmatitic gneiss. No gts observed.

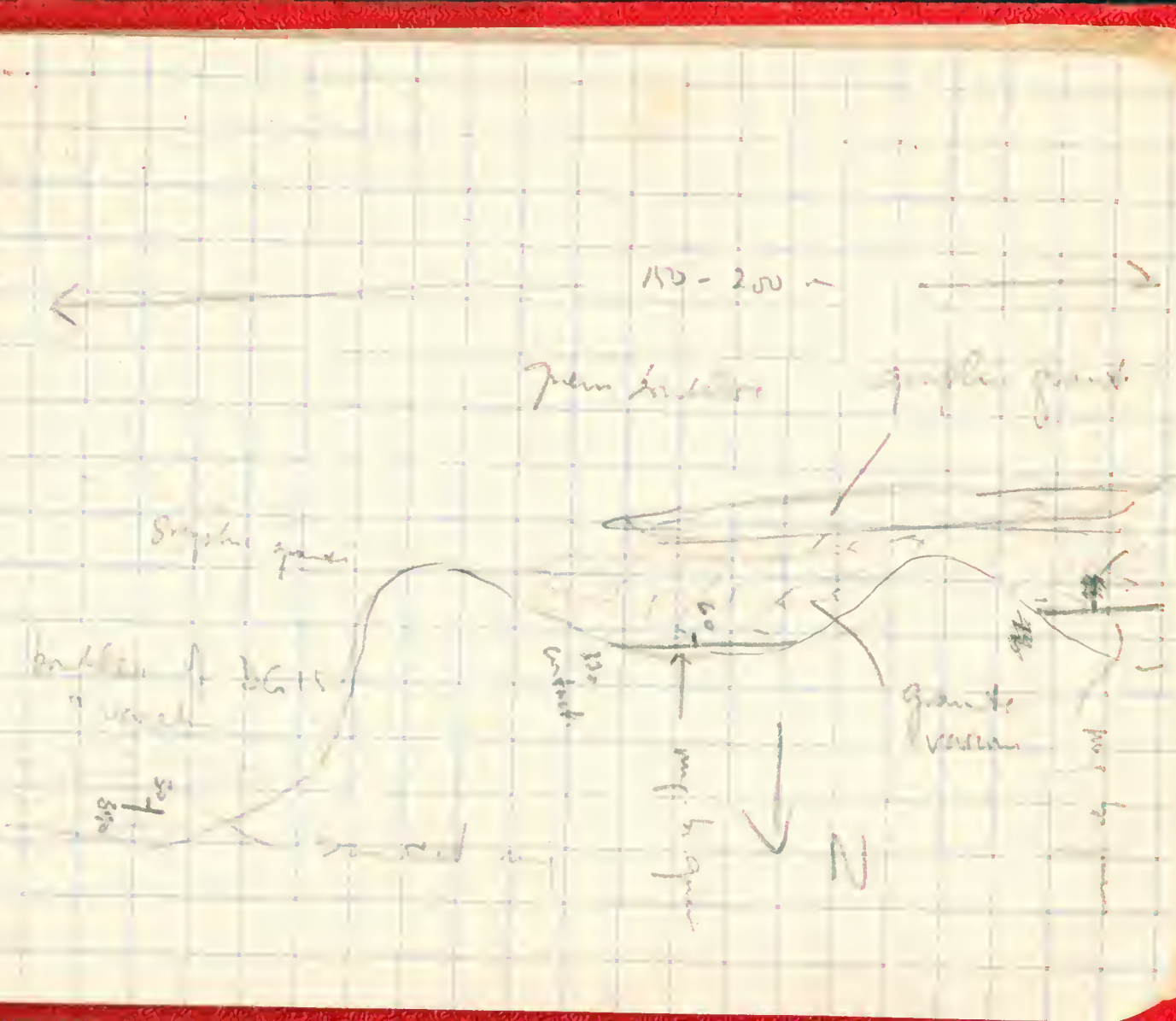
On inland side of granite from approx 20m W of 228 to about 30m E of 229 graphic to granite. No outcrop but continuous line of boulders. Approx 5m wide

[Sample DG19]

(230) W indentation in cliff caused by granite has disappeared and is now taken by graphic granite as DG19 ie Boundary about 5m inland strike 345°.

Shows up as a light coloured area + plots. Extends inland for about 60m as boulders

(231) At cliff edge v. well developed migmatite. Bi gneiss veined with granite and pegmatite veins. Feldspar graphic developed.


150 - 200 m
N

migmatitic · not a mylonite
the Si gneiss. Regularly banded. Some Hb in granitic veins. Veins several cms wide.
Sample DG 20 shows a Si gneiss banded with a few feldspar porphyroblasts and small Fe stained calcite and weeds. The samples veined with porphyritic Hb granite.
Some peg. granite veins up to 1m thick
Veins up to 15m wide. Included those are varieties of DG 15. Often rusty brown colour
Relation of migmatite and gneiss 330/30
(2 photos of banded migmatite)

(332) Headland ± W of large cleft in cliffs is composed of a variety of migmatitic gneisses of migmatitic aspect. Gneiss as DG 12 and DG 15 both without garnet are common.
These gneisses are intruded on a large scale — several porphyritic granite veins several metres wide cross-cut the gneiss.
Occasional NOT peg veins → 1m wide (Hb granite)

On W. slope of headland gneiss as DG 15
330/20 Few granites. Some feldspar porphyroblasts
(DG 21)

27

DG 23 ≡ 6928027 Olivine Basalt
Strike 045° True

A float cobble of vesicular porphyritic olivine basalt. Lacks the abundance of xenocrysts and fewer phenocrysts than DG 23, otherwise identical. Contains 1 cm diameter of qtz and pink feldspar mineral. Vesicles very small.

(233) Minor [illegible] followed by more clearly segmented quartz [illegible] (DG 22) (Lag [illegible] backing ground). Some contorted foliation and general foliation varies from 250 to 210° at steep dips to E. In part porphyroblastic and with coincident [illegible] of dark bands as DG 13 (b1 = K3 =)

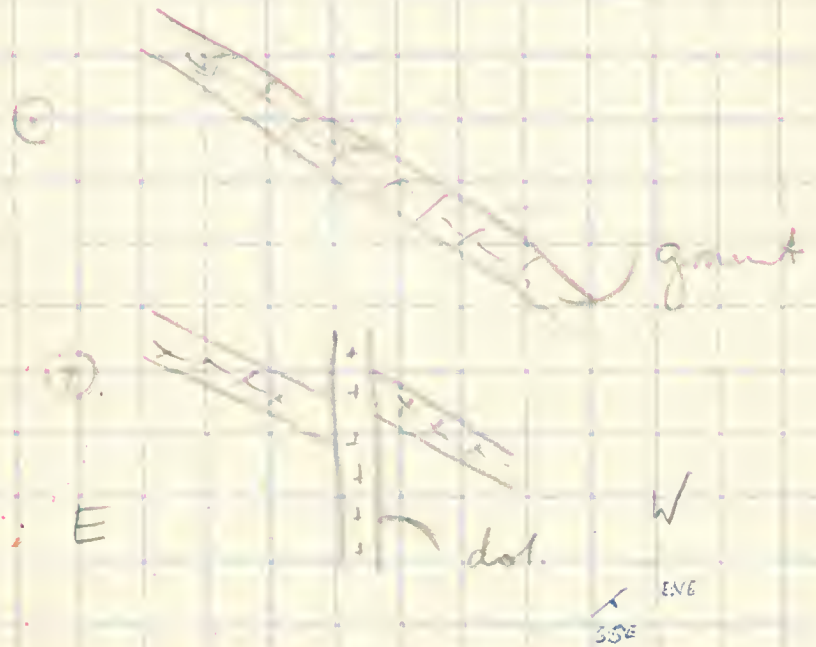
(234) On W side of cleft segmented quartzes as above and as a vein with [illegible] Some variation in strike + dips of foliation and [illegible] Major jointing 290/45 55/90

(235) Cleft strike 115°. Gully-forming, cleft is about 3 m. wide and is occupied with rubble of porphyroblastic delerite. DG 22 23 Similar rock is found in boulders near △ strike which is also strike from 234

Sample is blue-grey with a very fine grained matrix in which are randomly distributed laths and rounded crystals of a dark shining mineral

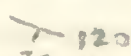
Cutting across gully is composite granite dyke Strikes to at 218

28


gaunt
E
W
dol.
ENE
SSE

There is probably the greatest throw across the cliff face for about 2½

Vein about 8m thick on N side N gully tapering off to E disappears near cliff top



Contact sharp

(dip inland)

There appears to be a slight displacement of the dyke across the gully but only about 2m. Not certain. The minerals in the gneiss adjacent to the gully are more contorted than elsewhere nearby and there may also be a biotite enrichment. However, it seems more probable that the dolerite dyke is probably entrained and its width (upper limit of the gully (about 3m) could be the cause of the displacement across the gully (E side down). (see diagram above)

gneiss veined by amphibolite

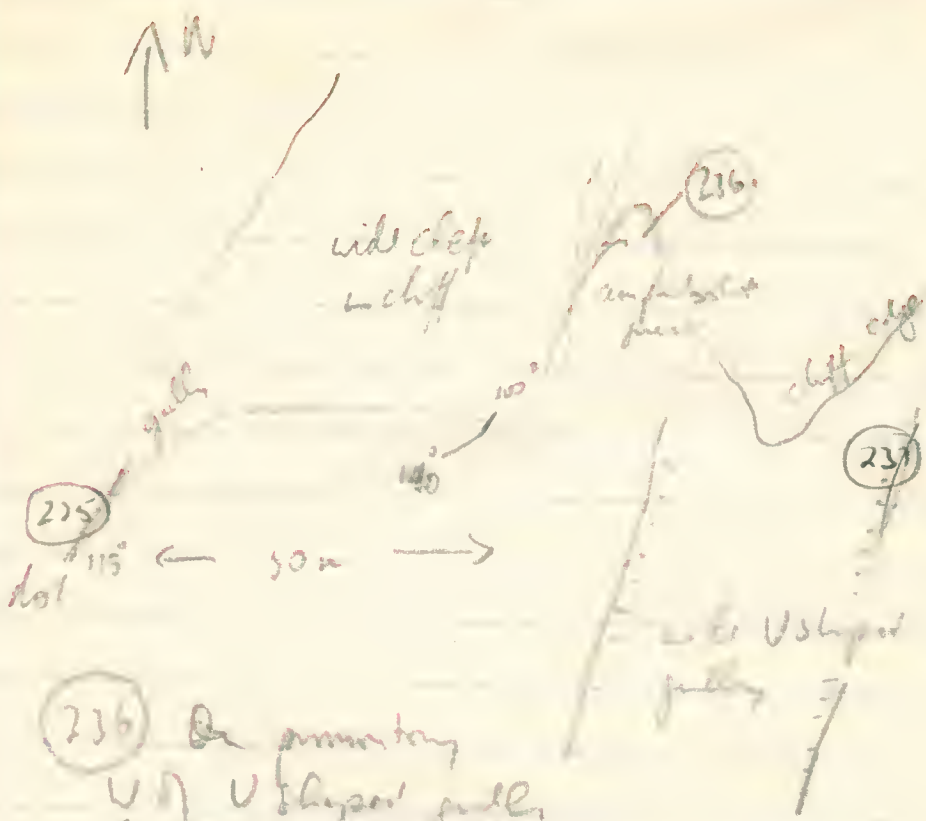
A second dol. dyke ½m thick 30m E along cliff. Curved contact (see diagram overleaf)

Dol. same as DG23

The gully at 21½ opens out to the large cleft in the cliff face (see diagram and photos.

DG 25 ≡ 6928021B.

2 pyroxene granulite.
Pyroxenes slightly altered to biotite



236 On promontory
U/S U shaped gully
to ~~entrance~~ ~~entrance~~ to bay c. to gnarrow 3-4 m
Hook 90 DG 24.

237 West side of gully all rocky. On E side boulder beach DG 25 Dark bands 2-3 cm wide separated by narrow QR bands. 1 cm. Higher proportion of dark minerals than has been noted previously. (Except similar banded rocks 234 - 237) Foliation 290 20 290 75 Some Pg present ε 190

30

DG 26 ≡ 69280102 - See p. 35

NB DG 26 [illegible]

Gully strikes about 090°, [illegible] Width of gully approx. 25m.
Possibility that more dol. dykes infilled here but masked by scree & rubble.
The gully is straight sided and opens out to the N. The gully also cuts the ridge along the cliff to the N. Increased erosion of the gully is a prominent feature in the N. stretch.

Excursion left for "DB" Carol Sutcliffe Steen ridge. Boulders reflect underlying geology.
At least one dolerite dyke trending approx 110°.
Vouchers of [illegible] DG25, DG 15. - greenish grey [illegible] approx 290/45 and DG 21. Yard sized [illegible] yellow grey [illegible] from road - voucher of DG15.) [illegible]
DG26 → [illegible] DG22 (Mid Ladder Hill) [illegible]
(238) [illegible] 280/40 [illegible]
(235) [illegible]

DG15 : 22.

[illegible] (238)

(239) Eastwards from Cliff 238 to Cliff 239. Similar pattern of alternating fine and coarse beds with a major bedding unit 1½ metres thick at west end of Cliff 239. Concentric granules get to gritty feld rock. A dolerite sill about ½ metre wide underlies this unit. Sharp contact unaltered.

Foliation on Cliff 239 290/20-25

Peg. dyke 1m. thick N/S (11° dip E)

Summit of 239 formed of impure beds of grit similar to DG 22 with rare granule and minor [illegible] in some specimens.

Remainder of ridge to end of cliff is similar alternating fine and coarse [illegible] gritty wacke. Units up to 2½ m thick 280/30-40

Cross Lake

along strike to the west. Rock is a fine B2-B3
(240) grain ss DG24 comm, plus may be gneiss
as DG 22, qt bn qtz feld granulite rock,
and possible qtz feldspar granite gneiss as
DG 26 Foliation approx 275/30

(241) Westward along strike to Hill 241 which
composed almost entirely of possible brn
qtz feldspar granite gneiss. Boulders abnp.

Hill 241 along strike from Hill 239 on
N side of valley. The marked difference
in lithology across the valley suggests that
there is an E-W fault along which the
valley has been eroded

TUESDAY 21st July

(242) Mt △stn float of porphyritic dolerite. Feldspars have weathered out of surface ⇒ pitting. Mtn Fe stained

Mt about 50m. E from △stn. more float of similar dolerite. Rest of slope, plateau, U-shaped valley, through N. cliff [283]

(242A) Traverse from △stn across to east side. A rounded loose boulders & few outcrops. No cliffs - east side. Rather a gentler slope down to glacier.

Boulders of 2 main rock types. The main type is yellow brown coloured fine to medium grained granite, porphyritic in parts [DG 26] often of pink porphyritic. Texture granular.

The other rock type is mainly fine grained often very contorted and veined with pegmatite and many irregular quartz veins. As DG 22. also porphyritic granite as [DG 27] Porphs → 2 cm. Well banded

(243) Boulder outcrop on side of valley Nt from △stn

3/4

DG 29 ≡ 69280219

2 pyroxene Granulite

DG 26 ≡ 69280102.

Opx - Qtz - kf - Plag gneiss

Minor replacement of Opx with Biotite

Large bulbs
granite grenades as DG 26 [DG 29]
Some irregular blocks + fens can link up
to a water Leg. It has a [topographic] letter
irregular parts of peg

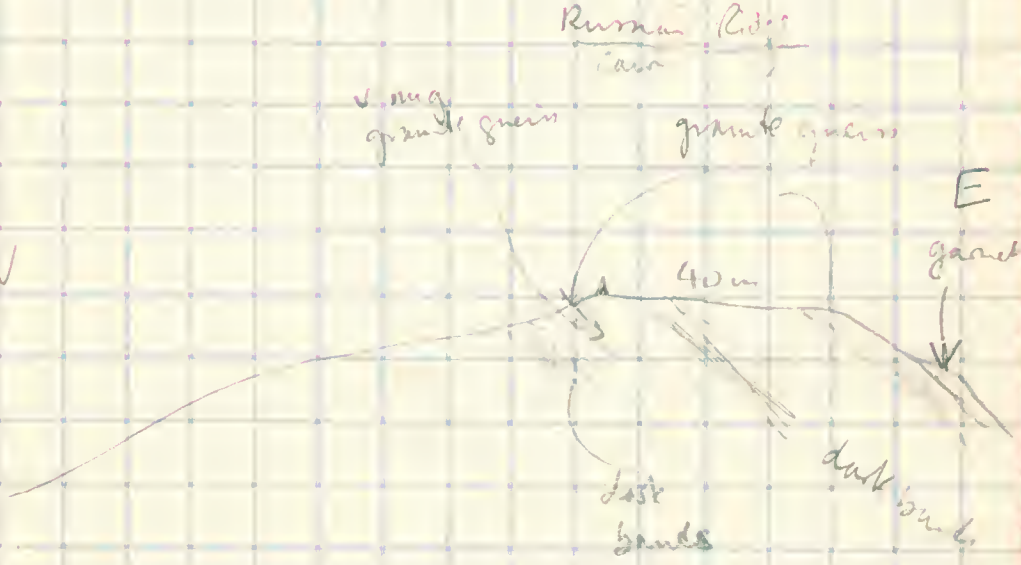
~~Cwm Hill~~ Russian Ridge

At foot of W slope flint [artifacts]
surface as at (142)

Up slope to small area rabbit and boulders
of yellow-brown granite [DG 26] and blue-
grey porphyritic impervious to frost, the
latter often enclosed and [surrounded] with [irregular]
granite. (boundary of DG 26) and (SO DG 27)

At about 730m up slope boulders of dark
banded [DG 25] from band-like
[boulders] across ridge

Followed up slope by [impervious] boulder
contacts/ banding. Some [amphibolite] bands in
[DG 25]. Similar to DG 25. Some
dilation veins of pegmatite → 1 m wide
Noticeable test pit slight elevation was
pegmatite but that 2 inches or two metres


Runway Ridge
garnet gneiss
garnet gneiss
E
W
40 m
garnet
dark band
dark bands

the pig diagram the green areas Fe stained → brown colour. Also observed that the yellow-brown granular areas contain the magnetite blebs. There may be variation in carb other than mainly in colour and degree of impregnation.

To summarise, all rock have granular matrix to the granite gneiss and have bands of biotite-rich layers.

Foliation 245 / 40-60 (all dipping to the east)

Dark bands often contorted. Mainly consist of banded light-coloured bi impregnated granular quartz-feldspar rock similar to DG 27. Some bands consist of granular quartz-feldspar cross-cutting the impregnated green bands.

243A At least 4 bands in this hand specimen, impregnated by green carbonate mineral + biotite. Rock is fine-grained. Sample DG 28

To east of diamond yellow-brown granular quartz-feldspar rock with bands of biotite-rich layers for about 40 m

Foliation 285 / 35

(244) Fine-grained E from coarse granite of granetyferous gneiss. Variation due to differing proportion of dark minerals and variation in grain size. Succession similar to on Rubeh Bluff.

FStrike 295/25

WED. 22nd JULY 1964

DG 29

(242) 6 age determination samples taken from dolerite sheet at 2 stn.

Flat joints marked band 1-2m wide striking 290°-295° whereas the bearings of the two clefts in the northern cliff under dolerite also found.

The samples were taken at irregular intervals from the base 10m S of the sheet to 50m N.

The samples are first intensely jointed have a fine surface weathering patina. Some of the porphyritic minerals have weathered out on the surface ⇒ Fe stained pits

Here
except along the coast especially in the north and on the E-W ridges. Much of the high ground is free from sharp E-W ridges covered with fine shattered boulders that reflect the underlying geology. There has probably been very little movement of this material except due to gravity on the slopes.
Scree formation and rounded hillcrest (eg. Ash Hill) is absent into the valleys and lowlying areas where it is completely mixed.

There appears to be very little true moraine in New York except for some moraine at the foot of the cliffs (mainly the glacier).

Poorly developed patterned ground is found on the higher boulder stream ground but the general lack of fine material makes sorting difficult. Patterned ground is best developed on the fine grained material in the valleys and on depressions on the flanks of the high

Polygonal ground in mesh Celtic [illegible]

(1) [illegible] zone between adjacent polygons
boulders up to several metres diam
Wide cracks between polygons

(2) Intermediate zone pebbles up to 5cm → 1cm
with minor number of small boulders

(3) Inner central zone Pebbles + small boulders
1cm and less
Frost heaving [illegible] central zone
Central zone [illegible]

[illegible] to a point [illegible] developed
[illegible] flow [illegible] [illegible] more close to the
surface eg. in the valley west from the
Canyon with Lake with A Green
Hill

DG32 ≡ 69280221

Bi Plag Qtz k feldsp gneiss.

DG31 ≡ 69280320.

Cpx - Hbl. - Plag k feldsp. granulite.
Strongly banded - Hbl rims Cpx.

Samples DG31 lat 71° 07' 30"
32 long. 71° 30

Regional Unit. Lubb NHz

Large E-W trending [illegible] Yeo Valley at W end

(245) Q cliffs DG 31 Coarse grained dark coloured granite from 3 poorly foliated From coloured & large - medium (Rather massive) Coarse grained.

FOL 310 / 40 Joints 285 / 80

Rhyme intruded & fine grained by pegmatite material

The other major unit is a light coloured - blue grey rock. Fine-med grained foliated. Rather massive - Large thin lens foliation and dips as above. Sample DG 32 Veined with pegmatite and granite material [illegible] Q, feldspar, biotite and magnetite. V little evidence of the foliation preserved

There two major units appear

MP 4460 - 67

1320 - 70

Samples DG 33
34
35
36

} lat 71° 07'
long. 71° 43'

Bands of ... [illegible]
... some minor ... [illegible]

Appears that granite from DG 79
is a variant of DG 31. Observed grading
into coarse phase.

— FOSTER NUNATAK

(296). Eastern of the two hills 2 km east of the Rognvald Peak (295)
NW. foot of ridge underlain by green schist
with garnet & & garnet-bearing
Sample DG 33 of bi-green schist
and banding ... epidote ... folded
Variation in grain due to varying amounts
of dark minerals. Veined and irregular
pods and layers of qtz + pegs
Interbanded ... minor ... with
bands of ... observed ... thick. Strike of
FA. 45/350
Considerable Fe staining ... some layers

At base of cliff fine qtz-fld DG 34
with ... bands of ... med ...

[illegible]

Unit DG 34 approx 20-[illegible] Mark 11 base
[illegible] approx 6 to more gt pressure very
light achieved and [illegible] pressure
[illegible] being [illegible] and [illegible]
normal running type the 6 pressures

Approx pressures 330 / 30

Pointed mouthpiece to vent approx [illegible] for
& large [illegible] mouthpiece strike approx 150 / 20

DG 35 variant of DG 33. QF. queen
hunt and [illegible]. V CHC to [illegible]
free mouth

Celestial version [illegible] of DG 33
Same as DG 36 Ven 4 on Mark
11 [illegible]

Samples DG 37 } lat. 70°46
38
39
40 } long 67°57'

Fox Ridge

High point west of Beaver Lake on ridge of Asta NMS 148
Lat 75°45' Long 67°57' V little ferro mag

247 At northern end of ridge for 200 m pegmatitic coarse grained granite gneiss
- pink red-brown feldspars up to 4 cms
- Clear Blue qtz. Massive red-brown rock forms tors [DG 57]
A vertical foliation strikes at 337°
- The foliation due to the orientation of the qtz and flat of the large feldspar porphyroblasts are not aligned with the foliation
The principal joints are [sketch: 70 and 75 / 105]

Cutting through the granite gneiss are bands of coarse pegmatitic rock with quartz veins. A band of the red brown gneiss near 247 strikes 310° and about 2m wide edges well foliated and passes into igneous qtz-feldspar - sheared zone. The pegmatite band is about 8m wide and the sheared zone about 3m. Some pegmatite and qtz float

4
4

It is marked by a small shear zone at the north end. The blue-grey unit appears to merge laterally into the normal red-brown granite gneiss.

(248) Standing between 247 and 249 the zone of shearing marked by the shear, merging laterally northwards into the normal red-brown granite gneiss of numerous boudins outcrops. The host surrounding the rock type is brown coloured and consists in the main of loose [not shattered] small boulders and cobbles. [DG38]

The zone of shearing strikes 330°. There is some pegmatite [host]

The difference in outcrop is marked across the shear zone. Joints 035 60 West. closer spaced than at 247 → smaller boulders as a result of [and more ferromag] similar trend to at 247 and [45 gr] ? more strongly foliated at about 330°

45

At about 70m S [illegible] 6m wide band of pink foliated [illegible] granite gneiss with feldspar rock – pink feldspar – fine grey qtz [illegible] strike 330° DG. 39

(248A)

Southwards the same [illegible] gneiss as near Osk with occasional bands and irregular areas of several metres diameter of DG. 39 and also similar areas and zones of a darker coloured more [illegible] variety of quartz feldspar grain DG 40

Granular bands, can be observed in the [illegible] ground to the east of the ridge. Many dykes steeply dip N.

Sunday 26th Jan

Traverse down steep E side of the ridge At foot of slope [illegible] boulders outcrop with wide gully striking 85° along bottom of ridge and through tors. Zone of schistosity at least 6m. wide

(249) Creamy coloured chert

about 50 m [illegible]

(250) Tor outcrop at foot of ridge. Massive porphyritic granite gneiss as DG 27. Large feld. phenos → 4cm. Only minor dark minerals. Foliated 348° vert. Possibly better foliated than DG37

Some minor shear zones within the granite gneiss

Shear 320 / 70 and 250 / 70

Shear joints 225 / 245 also subhorizontal

Some small veins (2-3cm) of thick fine v. fine grained material

Some minor blue qtz

On slope to east are of pink rock similar to DG39 strike 330°. Float for rest.

(251) At foot of slope gully and subcrop

(252) Eastern across valley to W side of small hill with tor outcrop. At foot of slope subcrop zone of above 4-5m wide. Strike about 85°.

47

Samples DG 41 } lat 70° 46' 253
42 } 253A
43 } long. 68° 00' 254

[illegible] sheep [illegible]
[illegible] side of main eastern hill [illegible]
4 metre sheared zone of fine grained
(now pink qtz) blue elongated [illegible]
80° (dimensions 40m × 5m) also main
foliation pcg.

Also minor blue zone ~~at 247~~
strikes approx 300° 310°. Appears to be a
zone sheared with blue qtz DG41
(Hill 253)

Next summit of hill shallow qtz,
trend 80° has blue vein qtz and
sheared rock to DG41.

Blue qtz veins top of hill

On southern end of hill 253 second
fracture zone strikes 315° Similar to
DG38 Zone sheared with veins

(253A) On S face of hill DG42 pegmatite
dyke rock with blocks of creamy pink qtz
and occasional crushed pink feldspar
2" wide. [illegible] green [illegible]

Strike [illegible]

Trace of coherent granite. Fragments of coarse to granite gneiss with dolerite

Outcrop of dyke steeply [illegible] [illegible]

[illegible] dyke swarm along ridge

of ridge 81 Count 4 dykes strike 85°.

Granite gneiss DG 37 [illegible] rock type

Strike 31° Strike 330 - 70.

254 On eastern spur of hill

253 Bleached zone 3-4m wide tapering eastwards and trending 310°.

Merges laterally into normal pink granite gneiss. Appears to be [illegible] bleached portion of the gneiss

Garnets absent and pegmatite

DG 43

Several zones [illegible] granite gneiss

[illegible] [illegible] [illegible]

entering fine grained granite gneiss and dark streaks

Samples DG 44, 45, 46 lat 70° 46' 30"
long. 67° 57'

[illegible] Same strike number as DG 43. Dips similar to DG 39. Beds strike [illegible] 20° to N another band with similar strike compared to DG 41.

Monday 27th Jan

(256) NW S end of ridge main rock type is DG 44. Dark micro- hard siliceous gneiss highly pyritic. Bands strike 340° Some [illegible] Small [illegible] boulders.

Irregular dark band as [illegible] DG 44 Also pink bands in [illegible] Coloured quartz

Band about 2m wide [illegible] 100m long similar to DG 43 Strike 330°

To the north [illegible] fold quartz [illegible] Dips NW at about 30° Strike 335°

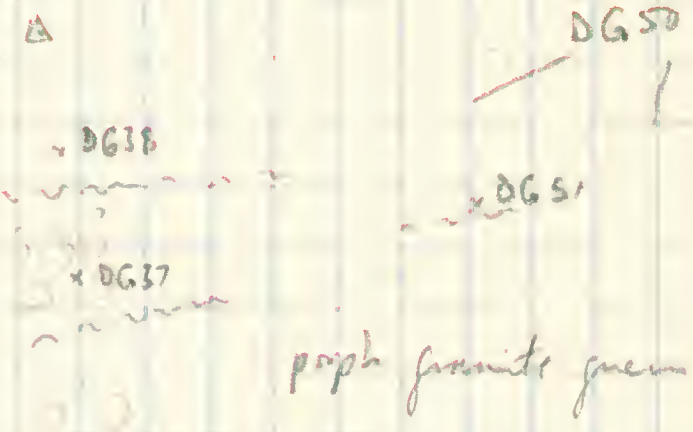
(257) NW foot of slope of main ridge [illegible]

to a cabin
Followed a N. side by speckled rock
DG 46.

(260) On [illegible] of hill a [illegible]
[illegible] covered with to [illegible] med grained
granitic gneiss appears parent [DG 47]
also stained in places. Vacants are
DG 35 and DG 34 ~ 40
lat 70° 46' long 67° 57'

Age determination samples

(247) [DG 48] 6 samples marked DG48
collected from a different location
near 247. Porphyritic granite gneiss from
[DG 49] 4 samples collected from
different localities at top 150 m N.
from DG 7
lat 70° 46'
long 67° 57'



Samples DG 50 } lat 70° 46'
51
52 } long 67° 57'

(246) [illegible]

Coarse grained garnet qtz. feldspar rock on S. side of boundary of coarse-grained porphyroblastic granite gneiss. Irregular patches several 10's metres across of DG50 within general country rock of DG38 and variants. Some more gneissic? sheared rock with DG50

Within same general locality and adjacent to porphyroblastic granite gneiss DG51 garnet qtz feldspar rock go minor dark band? to stained with malachite. ? sheared rock.

---

(247) DG52 Sample of white crystalline material found staining rocks on hill and especially beneath loose rocks

mixture of gypsum + thenardite.

$CaSO_4 \cdot 2H_2O$ Na_2SO_4

Traverse [illegible] for [illegible] lower
down about a mile further. [illegible]
lat

(262) LG 53 Meta quartzite fine - med grained
dark coloured [illegible] rock with light coloured
[illegible] feldspar bands. Bands about 1 cm thick.
Top of [illegible] hill - the main hill
to the south lat. 70°46'45" long 67°52'
[illegible] Lower [illegible]
at the second major rock type. Very
(263) DG 54 coarse grained [illegible] feldspar
? sheared [illegible] with streaks of ± garnet, sand
? gneiss. Dark [illegible] feldspars
Rock types DG 53 and DG 54 [illegible]
alternate in large rounded [illegible]
bands [illegible] wide. In one
area DG 53 is dominant
lat. 70°45'45" long 67°52

(264) [illegible] coarse [illegible] fine grained
dark hill, [illegible] alternation of dark
and light coloured [illegible]
of DG 53 - 54 (DG 55) in a coarse
lat 70°47 long 67°49

granitoid gneiss and pegmatite

Banding bends into concordancy with ~55/160 ~190

Whalebone Creek

(265) On domed hill (~~[illegible]~~) immediately N of confluence of prominent light & dark coloured streams. lat 70°47' long 67°49'

On summit of hill dark fine and grained gneiss as DG 53 & DG 44, minor DG 45 with pinkish lighter coloured gneiss

DG 56 coarse-grained slightly porphyritic, reddish grey feldspathic gneiss. Dark streaks of ~~[illegible]~~ biotite? scattered garnet. Layering at ~340° Boudins of N concordant pegmatite parallel to layering

cut

On crest of 265 banded gneiss as DG 44 & DG 53 outcrop. Minor tight folds ~55/140 Wavy foliation

On SW. of ~~[illegible]~~ of above pink outcrop of feldspar gneiss coarse grained ~30/190

Occurs below the dark speckled gneiss which forms most of the mountain crest (excluding the band of tight folds on ridge DG 56)

55

Samples DG 57 lat 70° 46'
58 long 67° 57'

(247) DG [illegible]
[illegible]
obscs. Rock has a stained surface and
blue colours but the interior of the rock is
pink coloured — Clear coloured purple feldsp.
and clear or white q/z.

(248) DG 58 On east flank of ridge below
col on top of dark rock striking approx
320° and west at dipping steeply to N.
Zone approx 2-3 m wide
Rock schistose — brecciated rock with
augen of pink feldspar porphyroblasts.

27 = 5.8 n. m/s

4:7

1 n.m. = 58 | 270

232

400

348

10 + 7

215